HALF-LIFE

Half-Life

- The amount of _____ required for _____ of the radioactive atoms in a sample to _____
  - Strontium-90 has a half-life of 29 years → if 10 g of strontium-90 was started with, there would only be _____ g of strontium-90 after 29 years had passed
- This is a useful tool because it can be used to date things

Carbon Dating

- Uses Carbon-14 to date the remains of _____ materials
- Carbon-14 has a half-life of _____ years
- All organic materials contain the same percentage of carbon-14 (1 in a trillion carbon) atoms → as carbon atoms _____ in a living organism, they are constantly _____ so the total number of carbon-14 atoms is almost _____
- When an organism dies, it no longer takes in carbon-14 atoms so the total number starts to _____
- By measuring the amount of carbon-14 left in a sample, the length of time it has been _____ can be determined
- Only useful for samples up to _____ years old → after this, there is not enough carbon-14 left to measure

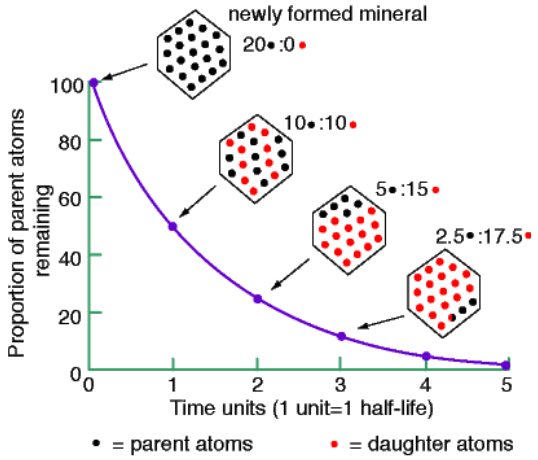
Radioactive Dating

- Other elements with different half-lives can be used to age older samples

Radioactive Element	Half-Life
Radon-222	
Potassium-40	
Uranium-238	
Rubidium-87	

Decay Curve

- A decay curve is a graph that shows the _____ of a radioactive isotope left after a given period of _____



- The _____ of a decay curve for different radioactive isotopes does not change → only the _____ changes

Half-Life Calculations

- Example: Iodine-131 has a half-life of 8 days. If you started with 50 grams of iodine-131, how much would be left after:
  a. 8 days?

  b. 32 days?

Homework Radioactive Decay Worksheet (BC Science 10 SWB pg. 132)
Calculating Half-Life Worksheet (BC Science 10 SWB pg. 134)
Decay Curves (BC Science 10 SWB pg. 135)